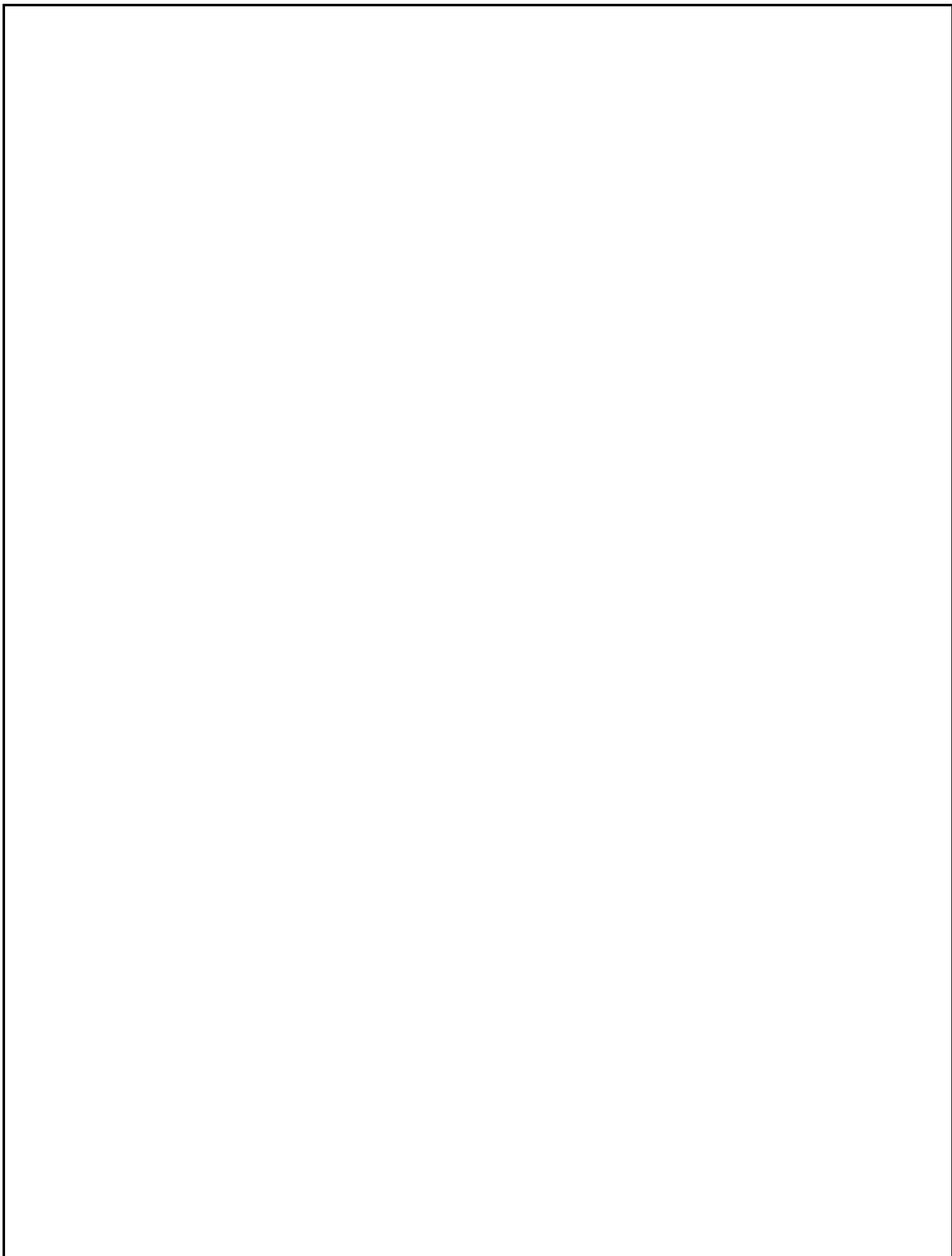

The Health Status of American Indians/Native Americans in Massachusetts

Massachusetts Department of Public Health

Center for Health Information, Statistics, Research, and Evaluation
Division of Research and Epidemiology

November 2006



The Health Status of American Indians/Native Americans in Massachusetts

Mitt Romney, Governor
Kerry Healey, Lieutenant Governor
Timothy R. Murphy, Secretary of Health and Human Services
Paul J. Cote, Jr., Commissioner of Public Health

Gerald F. O'Keefe, Director
Center for Health Information, Statistics, Research and Evaluation
Bruce Cohen, Director
Division of Research and Epidemiology

Massachusetts Department of Public Health

Acknowledgments

This report was prepared by Malena Orejuela Hood and James K. West, of the Division of Research and Epidemiology, Center for Health Information, Statistics, Research, and Evaluation.

We wish to express our gratitude to the North American Indian Center of Boston and the Mashpee Wampanoag Tribal Council for the results from their Community Health Surveys in 2002, and to the women and men who participated in the surveys.

Special thanks go to: Bruce Cohen, Director, Division of Research and Epidemiology, Center for Health Information, Statistics, Research, and Evaluation, and Brunilda Torres, Director, Office of Multicultural Health, Center for Community Health, for their input in the development and review stages of this report. In addition, we extend our gratitude to Christine Judge, Research Specialist, Division of Public Health Practice, Harvard School of Public Health, who began this report while working at the Division of Research and Epidemiology, Center for Health Information, Statistics, Research, and Evaluation.

We also like to thank the many people who contributed data for this report: Belinda J. Hanlon, Research & Evaluation Director, Department of Education; Susan Keyes, Senior Research Analyst, Health Survey Program, Center for Health Information, Statistics, Research, and Evaluation; Andrew Hanchett, Assistant Director, Office of Statistics and Evaluation, Bureau of Substance Abuse Services; and, Nidu Menon, Senior Epidemiologist, Chronic Disease Unit, Center for Community Health. The sections on Births and Mortality are based on data collected through the efforts of the Registry of Vital Records and Statistics staff. In addition, we wish to thank all reviewers of this document for their comprehensive and insightful reviews of this publication.

To obtain additional copies of this report, contact:

Massachusetts Department of Public Health
Center for Health Information, Statistics, Research and Evaluation
250 Washington Street, 6th floor
Boston, MA 02108

This and other Department of Public Health publications can be downloaded from following website:

<http://www.mass.gov/dph/resep>
(Click on [Population Health Statistics](#))

To obtain more information other Department of Public Health data:

register for the Department's free, Internet-based public health
information service, MassCHIP, via the website at:

<http://masschip.state.ma.us>

or call 888-MAS-CHIP (toll free in MA) or 617-624-5629.

Table of Contents

List of Tables	6
Introduction.....	7
EXECUTIVE SUMMARY	9
I. Massachusetts Census Data	17
A. Population.....	17
B. Ethnicity	18
C. Tribal Enrollment	19
D. Age	20
D. Top Ten Cities and Towns	22
E. Income	24
F. Education.....	24
G. Poverty.....	25
H. Housing	25
II. Behavioral Risk Factor Surveillance System Data, 2001-2005	29
III. Mashpee Wampanoag Community Health Survey, 2002	33
IV. North American Indian Center of Boston Community Health Survey, 2002	39
V. Birth Indicators, 1999-2004.....	43
VI. Mortality Indicators, 1994-2004	49
VII. Admissions to BSAS Substance Abuse Treatment Programs, 2001-2004	53
VIII. Early Intervention Program Utilization, 2001-2003	57
IX. Department of Education Data (DOE)	61
A. Enrollment Data	61
B. Dropout Data	61
C. Retention Data	62
D. Competency Determination Data	63
E. Plans of High School Graduates	64
F. Youth Risk Behavior Survey	64
APPENDIX.....	67
SELF DESIGNATION OF RACE AND ETHNICITY.....	69
GLOSSARY.....	74
DATA SOURCES	78

List of Tables

Table 1. American Indian and Alaska Native, Massachusetts Population	18
Table 2. American Indian and Alaska Native by Hispanic Ethnicity	19
Table 3. American Indian and Alaska Native Tribes.....	20
Table 4. Median Age and Age Distribution of Native American Population: 2000.....	21
Table 5. Top Ten Cities and Towns with Largest Populations of Native Americans: 2000	22
Table 6. Cities and Towns with Highest Percentage of Native Americans: Census 2000	22
Table 7. Cities and Towns with Highest Percentage of American Indians/Native Americans, Massachusetts: MRACE 2000	23
Table 8. Income Characteristics	24
Table 9. Educational Level Massachusetts: 2000.....	24
Table 10. Poverty Level.....	25
Table 11. Housing Characteristics	25
Table 12. Behavioral Risk Factor Surveillance System Data	30
Table 13. Mashpee Wampanoag Community Health Survey.....	34
Table 14. North American Indian Center of Boston Community Health Survey	40
Table 15. Selected Birth Indicators	44
Table 16. Selected Birth Indicators by American Indian.....	45
Table 17. Number and Age-adjusted Death Rates *	49
Table 18. Leading Causes of Death	50
Table 19. Admissions to BSAS Substance Abuse Treatment Programs	53
Table 20. Admissions to BSAS Treatment Programs, Massachusetts: 2001-2004	54
Table 21. Admissions by Primary Drug of Choice.....	54
Table 22. Early Intervention Program Utilization	57
Table 23. School Enrollment	61
Table 24. School Dropout Rates	62
Table 25. School Retention Rates.....	62
Table 26. Percent of Students Attaining the Competency Determination: Class of 2005	63
Table 27. Percentage of Graduates by Plans.....	64
Table 28. Youth Risk Behavior Survey Data	66

Introduction

The Health Status of American Indians/Native Americans¹ in Massachusetts is the first report ever by the Massachusetts Department of Public Health (MDPH) on the health status of American Indians in Massachusetts, and the first in the nation, comprehensive state report on American Indian health. With this report Massachusetts takes the lead in developing a comprehensive strategy for monitoring the health of all races in the Commonwealth.²

There are between 15,000 to 30,000 American Indians living in Massachusetts. This population is comparable to the population of the city of Chelsea. American Indians in Massachusetts share a common heritage and face common health problems. We have attempted to give a snapshot of the health status of American Indians by examining data from multiple sources.

This report presents outcomes of the major indicators of health for American Indians/Native Americans in Massachusetts. Indicators included in this report are the standard set that MDPH routinely monitors and reports. These data come from state data sources providing information on health status in Massachusetts such as births and deaths from the Registry of Vital Records and Statistics, admissions to substance abuse treatment programs, Early Intervention Program utilization, and, survey data from the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS).

In addition, this report includes data from the Mashpee Wampanoag Community Health Survey and the North American Indian Center of Boston Community Health Survey. The section on demographics uses data from the U.S. Census Bureau. This report also includes a section on data from the Massachusetts Department of Education on high school enrollment, school dropouts, school retention rates, attainment of competency determination, plans for high school graduates, and data from the Youth Risk Behavior Survey (YRBS).

¹ Note that the Census Bureau race category for American Indian includes Alaska Native (“American Indian and Alaska Native”). The single-race Alaska Native population of Massachusetts was 128 according to Census 2000. However, since the datasets and surveys used in this publication did not report separately on Alaska Natives, we were unable to present data on this group.

² MDPH has previously published, *Asian Births in Massachusetts 1996-1997*, *Hispanic Births in Massachusetts 1996 -1999*, and *Births to Black Mothers in Massachusetts 1997-2000*.

EXECUTIVE SUMMARY

Executive Summary

This is the first document published by the Massachusetts Department of Public Health (MDPH) that focuses on the health of American Indians residing in the state. There is no systematic surveillance of the health of American Indians by states or the U.S., so that we have no external data with which to compare our findings. Therefore, we don't know how the health status of American Indians in Massachusetts ranks among the states. The findings in this report provide a benchmark by which Massachusetts can track improvement in American Indian health.

According to the U.S. Census 2000:

- The per capita income for American Indians in Massachusetts is 60% of the state per capita income.
- The proportion of American Indian families living below 100% of the poverty level is three times that of the state average.
- The proportion of American Indians who have less than a high school education is almost twice that of the state average.

Poor education and poverty are associated with poorer health outcomes, and the findings for American Indians in Massachusetts are no exception.

- According to data from the Massachusetts Behavioral Risk Factor Survey, more than 29% of American Indians reported being in poor or fair health as compared with about 13% for the state overall.
- According to Massachusetts birth data, the proportion of American Indian mothers who reported smoking during pregnancy is three times that of all mothers.

American Indians have less access to health care than Massachusetts residents overall. For example, the proportion of American Indians who reported having no health insurance on the Behavioral Risk Factor Surveillance System was 2.3 times greater than that of the state as a whole, and the proportion of those who reported being unable to see a doctor due to cost was over twice that of Massachusetts overall.

American Indian youth also experience poorer outcomes when compared with all Massachusetts high school students.

- The proportion of American Indian high school students who reported being involved in gangs is over three times that of all other students.
- American Indians were 32% less likely to go to a 4-year public college and almost twice more likely to work after graduating from high school than all students.
- The proportion of American Indian high school students who reported attempting suicide is more than 2.5 times that of all other students.

Terminology

Which term to use when referring to the group that is the subject of this report has been, and still is, controversial -- some persons prefer “American Indian”, while others prefer, “Native American.” A 1995 U.S. Census Bureau Survey³ of preferences for racial and ethnic terminology indicated that 49% of Native people preferred being called *American Indian*, 37% preferred *Native American*, 3.6% preferred "some other term," and 5% had no preference. As *The American Heritage Guide to English Usage* points out, "the issue has never been particularly divisive between Indians and non-Indians. While generally welcoming the respectful tone of *Native American*, Indian writers have continued to use the older name at least as often as the newer one." The terms “American Indian” and “Native American” are used interchangeably in this report, except where noted. Where possible, we have used the same term in the text and tables that was used in the data collection.

Limitations of the Report

There are several reasons why producing a comprehensive report on American Indian health is a challenge. First, because the American Indian population in Massachusetts is small when compared with other race groups (less than 1%), and the annual number of health events (births, deaths, hospital admissions, etc.) is relatively small, several years’ data must be combined in order to get sufficient numbers for analysis, especially to determine rates. The number of years that have been grouped depends upon the dataset (i.e. datasets with fewer events need to combine more years). Therefore, caution must be used when comparing sections of this report that are based on different time periods.

A further challenge related to the already-small amount of health data for the American Indian population in Massachusetts is the likelihood that some data elements may be unreliable due to reporting error in the race variable. For example, a number of studies have documented that, in a significant number of death certificates in the U.S., race/ethnicity is improperly recorded⁴. At least two studies have found misclassification of race specifically on the death certificates of American Indians^{5,6}. In addition, according to a PricewaterhouseCoopers Census Study, the Census 2000 undercount rate for American Indians/Alaskan Natives in Massachusetts was 2.2%, which means that there may be reporting error in the denominator as well⁷.

In addition, data on Massachusetts American Indian health may be incomplete because members of the Aquinnah Wampanoag Tribe, which is federally recognized, may seek care at out-of-state Indian Health Service (IHS) facilities. For example, members of the Aquinnah Wampanoag Tribe have sought substance abuse treatment at an IHS facility in North Carolina⁸. Massachusetts is included in the IHS Nashville Region, which serves the Eastern United States.

⁴ Hahn, R. A. and Eberhardt, S. Life expectancy in four U.S. racial/ethnic populations: 1990. *Epidemiology* 6, (4), 350-355.

⁵ Murray CJL, Michaud CM, McKenna M, Marks J, US Patterns of Mortality by County and Race: 1965-1994, online publication, available from, <http://www.hsph.harvard.edu/organizations/bdu/images/usbodi/index.html>, accessed August 23, 2006.

⁶ Sorlie, P. D., Rogot, E., Johnson, N. Validity of demographic characteristics on the death certificate. *Epidemiology* 3, (3), 181-184.

⁷ U.S. Census Bureau, Census 2000: www.census.gov

⁸ Conversation with Ron MacLaren, Health Director for the Aquinnah Wampanoag.

There is IHS facilities located throughout the region. In the future, we will explore retrieving health data from the IHS National Data Warehouse in order to obtain a more complete picture of service utilization⁹

A further factor affecting our ability to produce a comprehensive study of American Indian health in Massachusetts is that race data are collected differently by the various collecting entities. For example, regarding the state birth file, the mother reports her own race and ethnicity and, in the case of American Indian mothers, her tribal affiliation; in the state death file, the race and ethnicity of the deceased can be attributed by any of a number of individuals, including a funeral director, physician, nurse, or family member. For hospital records, a hospital clerk may assign the race and ethnicity of a patient. In addition to the variation in the source of a person's race and ethnicity, the available race and ethnicity categories differ from one dataset to another. For example, in one system, "Hispanic" may be considered a race, while in another, an ethnicity. Although national standards for race and ethnicity collection were established by the Office of Management and Budget (OMB) in 1997, these have not been adopted uniformly. This makes it difficult to enumerate events and compare data.

According to U.S. Census 2000, the percentage of the overall population in Massachusetts who considered themselves multiracial (i.e., a combination of two or more races) is small (2.3%). However, American Indians, who made up 0.24% of the Massachusetts single-race population, accounted for 15.6% of the multiracial population (i.e. of the 146,005 persons who identify as being a combination of two or more races, 22,751 are, in part, American Indian). Many multiracial persons who are in part American Indian, when specifying their race on forms that restrict them to only one race, may choose a race other than American Indian. This, too, contributes to an incomplete picture of the health status of American Indians because we may not be able to obtain correct denominators to use in rate calculations.

The challenge in obtaining data with reliable race and ethnicity information is both a limitation and a finding of this study. We have found that it is difficult to compile data on American Indians, which is accurate in terms of race and ethnicity, and it is difficult to amass sufficient numbers of American Indian health events to enable meaningful comparisons and tests of statistical significance. Furthermore, even self-report, which is the gold standard of race and ethnicity collection, does not yield accurate data for American Indians.

Health outcomes among American Indians are likely to vary with tribal affiliation, demographic characteristics, health behaviors, and other influences on health. The state birth file is the one source of health outcomes by tribal affiliation. Since the number of births in Massachusetts for American Indians alone (without stratifying by tribal affiliation) is very small, it would require the aggregation of many years of birth data to understand how tribal affiliation affects birth outcomes. This study is further complicated by the fact that many American Indians consider themselves to be affiliated with more than one tribe.

It should be noted that American Indians had an age-adjusted death rate that was nearly one-half that of the state as a whole for the years 1994 to 2004, even though they had poorer health outcomes and greater health risks. The authors of the Harvard University Burden of Disease

⁹ For more information about the IHS Data Warehouse, see: <http://www.ndw.ihs.gov/>, accessed online 10/23/06.

Unit study of mortality in U.S. counties encountered the same paradox. They were concerned that four counties had extremely high life expectancies for American Indians, and believed that this was likely due to death rates that were too low because of miscoding of American Indians on the death certificates¹⁰. The coding of American Indian on death certificates as well as other sources of error must be studied in order to understand and interpret this finding. A study by the National Center for Health Statistics also found that national death rates for American Indians were too low by approximately 20%¹¹.

In summary there is a lack of health data on American Indians, and what is available is often confounded by race reporting errors and problems establishing accurate denominators. Because of small numbers of health events, it is not possible to present trends in health outcomes for American Indians.

Conclusion

Despite the limitations, the findings of this report clearly show that American Indians in Massachusetts experience disparities in health outcomes. This document can serve as a benchmark by which to track health outcomes in the future and stimulate both research into the health of American Indians in Massachusetts and development of programs to prevent health problems experienced by this population.

¹⁰ Murray CJL, Michaud CM, McKenna M, Marks J, US Patterns of Mortality by County and Race: 1965-1994, online publication, available from, <http://www.hsph.harvard.edu/organizations/bdu/images/usbodi/index.html>, accessed August 23, 2006.

¹¹ Rosenberg HM, Maurer JD, Sorlie PD, et al. Quality of death rates by race and Hispanic origin: a summary of current research, 1999. Vital and Health Statistics 1999; Series 2, No. 128. Hyattsville : National Center for Health Statistics.

POPULATION DATA

I. Massachusetts Census Data¹²

In the 1980 and 1990 U.S. Census, there were four mutually exclusive single-race categories that totaled 100 percent of the population: White, Black, American Indian and Alaskan Native, and Asian and Pacific Islander. In 2000, the Census changed its method of collecting race in order to comply with the Office of Management and Budget's *Revised Standards for the Collection and Tabulation of Race and Ethnicity Data* (OMB, 1997). For the first time, respondents could mark all that applied of five race categories: White, Black or African American, American Indian and Alaska Native (AIAN), Asian, and Native Hawaiian and Other Pacific Islander. They could also select, "Some other race".

This change has made the tabulation and reporting of race complex, since there are 63 ways to specify race; from one race alone to a combination of six races including some other race. The Census Bureau has chosen to present two counts of each race. The first is a count of persons who chose only one race, and the second is the count of persons who chose one or more races including some other race. In order to be consistent with past reporting, the Massachusetts Department of Public Health (MDPH) created a file, the Massachusetts Department of Public Health (DPH) Race-Allocated Census 2000 Estimates (MRACE) that reallocated those who chose more than one race back into the four mutually exclusive race categories. In the Bridged-Race Vintage 2004 (July 1, 2000 - July 1, 2004) Postcensal Population Estimates for Calculating Vital Rates file, the National Center for Health Statistics (NCHS) bridges the multiple-race group population counts from the Census Bureau's Population Estimates Program to single-race categories.

This section presents the "race alone" and the "race alone and in combination" counts and bridged counts from MRACE and NCHS files. The socio-demographic indicators are presented for American Indian and Alaska Native (AIAN) alone because this is the method of race collection used for these indicators by the Census Bureau. Note that for Census 2000, "American Indian" includes people who indicated their race as "American Indian," entered the name of an Indian tribe, or reported such entries as Canadian Indian, French American Indian, or Spanish American Indian. This category includes Canadian and Central and South American Indians. "Alaska Native" includes written responses such as Eskimos, Aleuts, and Alaska Indians. In Massachusetts, 128 persons indicated that they were Alaska natives alone. The Census combined these two groups in 2000.

A. Population

This section presents the multiracial and bridged population numbers for the American Indian and Alaska Natives in Massachusetts (counts include both Hispanic and Non-Hispanic). Table 1 presents the population of American Indian or Alaska Natives in Massachusetts according to the multiracial and bridged methods.

¹² U.S. Census Bureau, Census 2000.

- According to Census 2000, 38,050 persons in Massachusetts reported their race was American Indian and Alaska Native (AIAN), either alone or in combination with one or more races. Eighty-eight percent reported that they were AIAN alone or in combination with one other race. The most frequently reported two race combination was AIAN and White (12,754 persons).
- According to the Massachusetts Department of Public Health's Massachusetts Race Allocated Census 2000 Estimates (MRACE 2000), the number of American Indian and Alaska Native in Massachusetts is 19,390 (0.3% of the state's population). This is the number that is used by MDPH as a denominator to calculate rates; for example, the American Indian birth rate is calculated by dividing the number of births to American Indian and Alaska Native mothers by the American Indian and Alaska Native population (19,390).
- The NCHS Population Estimates for 2004 for American Indian or Alaska Natives in Massachusetts is 21,650. The estimates for 2000 through 2003 were: 20,854; 21,134; 21,289; and 21,454, which indicates an estimated increase of 3.5% in this population from 2000 to 2004.

Table 1. American Indian and Alaska Native, Massachusetts Population (Hispanic and Non-Hispanic)		
Census 2000	Number	Percent
American Indian and Alaska Native Alone	15,015	39.5%
Two Race Combination	18,626	49.0%
Three Race Combination	3,806	10.0%
Four Race Combination	464	1.2%
Five Race Combination	132	0.3%
Six Race Combination	7	0.0%
Total - American Indian and Alaska Native Total Alone or in Combination	38,050	100.0%
Bridged Files		
MDPH Race Allocated Census Estimates (MRACE)	19,390	NA
NCHS Vintage 2004 Postcensal Population Estimates (2004)	21,650	NA

Source: U.S. Census Bureau, Census 2000 & NCHS 2004

B. Ethnicity

The Census Bureau recognizes only one ethnicity: Hispanic. Persons can select either Hispanic or Non-Hispanic. American Indians and Alaska Natives include both Hispanics and Non-Hispanics. According to the NCHS Vintage 2004 Postcensal Population Estimates (Table 2), the AIAN Non-Hispanic population has grown less than one percent since 2000, from 14,730 to

14,869 in 2004. However, the AIAN Hispanic population has grown by almost 11%, from 6,124 in 2000 to 6,781 in 2004.

Table 2. American Indian and Alaska Native by Hispanic Ethnicity Massachusetts: 2000-2004					
	2000	2001	2002	2003	2004
AIAN non-Hispanic	14,730	14,797	14,813	14,819	14,869
AIAN Hispanic	6,124	6,337	6,476	6,635	6,781
Total	20,854	21,134	21,289	21,454	21,650

Source: National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004 , United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Available on the Internet at:

<http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>. September 9, 2005.

C. Tribal Enrollment

Respondents who identified themselves as American Indian or Alaska Native on Census 2000 were asked to report their enrolled or principal tribe. Therefore, tribal data in tabulations reflect the written entries reported on the questionnaires. Please note that people reporting their tribal affiliation may use language or other descriptors instead of tribal nations. The information on tribe is based on self-identification and therefore does not necessarily reflect any designation of federally or state-recognized tribe. Information on American Indian tribes in Massachusetts is presented in Table 3. The information for Census 2000 was derived from the American Indian Tribal Classification List for the 1990 census that was updated based on a Department of Interior's Bureau of Indian Affairs' December 1997 Federal Register Notice entitled "Indian Entities Recognized and Eligible to Receive Service from the United States Bureau of Indian Affairs". This was issued by the Office of Management and Budget and, according to this publication the Wampanoag Tribe of Gay Head (Aquinnah) is the only federally recognized American Indian Tribe in Massachusetts.

- Among respondents who identified as American Indian or Alaska Native in Massachusetts, 10.6% identified their tribe as Cherokee, 7.1% as Native Canadian or Latin American, and 6.7% identified as members of the Wampanoag Tribe of Gay Head (Aquinnah). The majority (42%) of respondents did not report a tribe (Table 3).

**Table 3. American Indian and Alaska Native Tribes
Massachusetts: 2000**

Tribe (Self-Identified)	Number	Percent of MA AIAN Population (Alone or in Combination)
Cherokee	4,037	10.6%
Canadian and Latin American	2,716	7.1%
Wampanoag Tribe of Gay Head (Aquinnah)*	2,546	6.7%
Micmac	1,554	4.1%
Blackfeet	1,521	4.0%
Iroquois	1,464	3.8%
Nipmuc	710	1.9%
Abenaki Nation of Missiquoi	696	1.8%
American Indian, Tribe Not Specified	2,002	5.3%
Tribal Response, Not Elsewhere Classified	115	0.3%
Other Tribes	4,754	12.5%
Tribe not Specified	15,935	41.9%
TOTAL	38,050	100.0%

* Only federally recognized American Indian Tribe in Massachusetts.

Source: U.S. Census Bureau, Census 2000, special tabulation. Census 2000 PHC-T-18. American Indian and Alaska Native Tribes in Massachusetts: 2000

D. Age

- In 2000, the American Indian and Alaska Native (alone) population in Massachusetts was younger than the total state population. The median age for American Indian and Alaska Native (alone) was 30.4 compared with 36.5 for the state as a whole (Table 4).
- Approximately half of the American Indian and Alaska Native population was younger than age 30, while only 40% of the state population as a whole was less than 30 years of age.
- Only 9% of the American Indian and Alaska Native (alone) population was 60 years or older compared with 17% for the state as a whole.

**Table 4. Median Age and Age Distribution of Native American Population
(American Indian and Alaska Native Race, Alone), Massachusetts: 2000**

	Massachusetts AIAN, Alone		Massachusetts	
Median Age	30.4		36.5	
Age (years)	Census 2000 Population	Percent of population	Census 2000 Population	Percent of population
0-4	1,095	7.3	397,268	6.3
5-9	1,396	9.3	430,861	6.8
10-14	1,365	9.1	431,247	6.8
15-19	1,258	8.4	415,737	6.5
20-29	2,289	15.2	838,303	13.2
30-39	2,507	16.7	1,033,357	16.3
40-49	2,335	15.6	984,347	15.5
50-59	1,426	9.5	721,410	11.4
60-69	687	4.6	452,903	7.1
70-79	446	3.0	396,273	6.2
80 plus	211	1.4	247,391	3.9
TOTAL	15,015	100	6,349,097	100

Source: U.S. Census Bureau, Census 2000 Summary Tape File 3 (STF3).

D. Top Ten Cities and Towns

- Boston had the largest American Indian and Alaska Native for “alone” and “alone or in combination” population in Massachusetts in 2000.

Table 5. Top Ten Cities and Towns with Largest Populations of Native Americans (Alone, and Alone or in combination with other races), Massachusetts: 2000

City / Town	AIAN (Alone): Count	City / Town	AIAN (Alone, or in combination): Count
Boston	2,365	Boston	5,384
Worcester	769	Worcester	1,700
Lawrence	583	Springfield	1,473
New Bedford	579	New Bedford	1,288
Springfield	569	Lawrence	921
Mashpee	377	Brockton	876
Brockton	338	Cambridge	853
Lynn	332	Lynn	796
Cambridge	290	Lowell	676
Barnstable	283	Fall River	587
Top 10 Total - Alone	6,485	Top 10 Total - Alone or Combination	14,554

Source: U.S. Census Bureau, Census 2000.

- Aquinnah (Gay Head) had the largest percentage of American Indian and Alaska Natives (Alone, or in combination with one or more races), 43% of all Aquinnah residents are American Indians. About 4% to 5% of residents of towns such as Gosnold, Bourne, and Mashpee were American Indian or Alaska Natives (Alone, or in combination with one or more races).

Table 6. Cities and Towns with Highest Percentage of Native Americans (Alone, and Alone or in combination with other races), Massachusetts: Census 2000

City / Town	AIAN (Alone) %	City / Town	AIAN (Alone, or in combination with one or more races) %
Aquinnah (Gay Head)	36.6	Aquinnah (Gay Head)	43.0
Mashpee	2.9	Gosnold	4.7
Bourne	2.1	Bourne	4.4
Oak Bluffs	1.5	Mashpee	3.9
Tisbury	1.4	Charlemont	2.8
Tolland	1.2	Shutesbury	2.6
Holland	0.8	Oak Bluffs	2.6
Erving	0.8	Tisbury	2.1
Lawrence	0.8	Erving	2.0
Petersham	0.8	New Salem	1.9

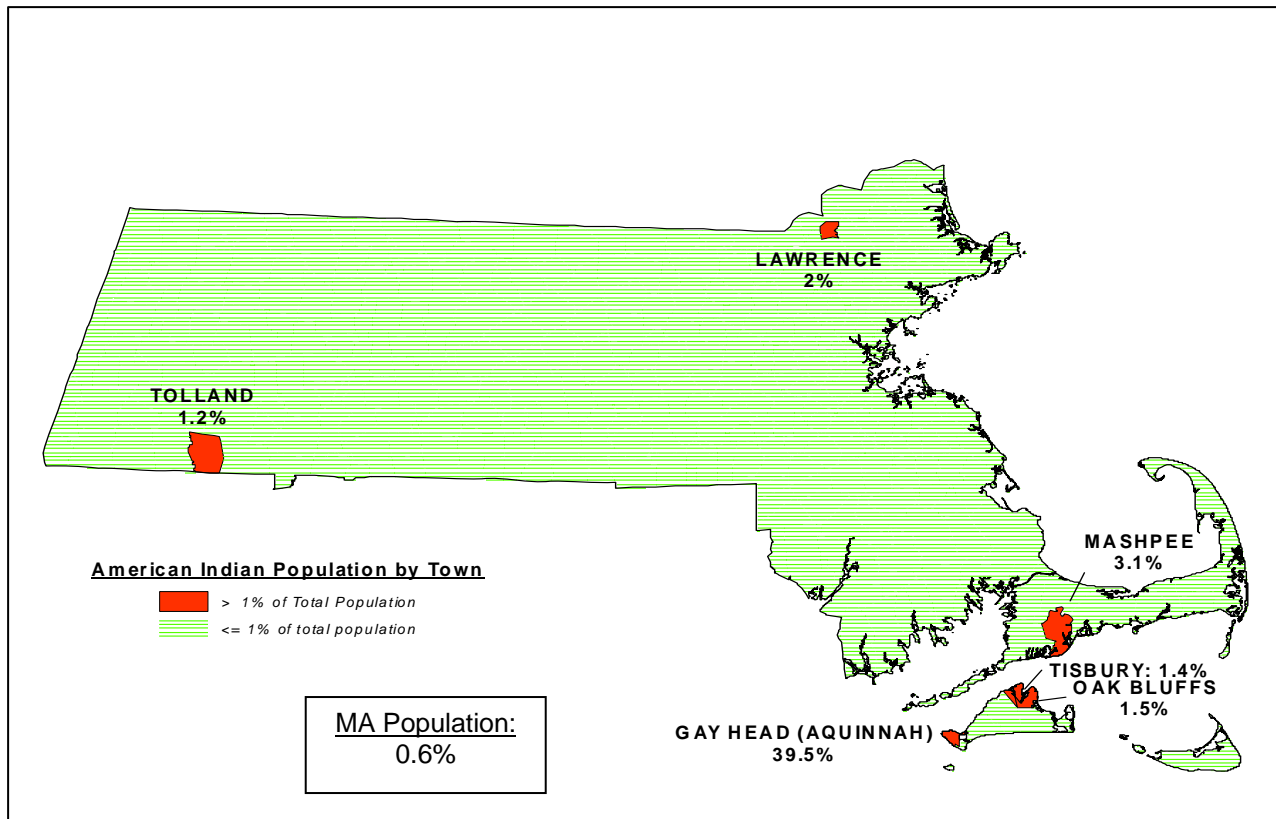
Source: U.S. Census Bureau, Census 2000.

Table 7. Cities and Towns with Highest Percentage of American Indians/Native Americans, Massachusetts: MRACE 2000

City / Town	Massachusetts American Indian and Alaska Natives	% Massachusetts American Indian and Alaska Natives	Total Population
Aquinnah (Gay Head)	136	39.5%	344
Mashpee	405	3.1%	12,946
Lawrence	1,446	2.0%	72,043
Oak Bluffs	56	1.5%	3,713
Tisbury	51	1.4%	3,755
Tolland	5	1.2%	426
New Bedford	855	0.9%	93,768
Erving	13	0.9%	1,467
Holyoke	348	0.9%	39,838
Holland	21	0.9%	2,407

Source: U.S. Census Bureau, Census 2000.

Figure 1. Percentage Native American by Cities and Towns, Massachusetts: 2000



* Massachusetts Department of Public Health (DPH) Race-Allocated Census 2000 Estimates (MRACE) released January, 2002.

E. Income

Note that unless otherwise noted, socio-demographic indicators are given for American Indian and Alaska Natives alone.

- The per capita income for American Indian and Alaska Natives in 1999 (\$15,889) was close to 40% below the state per capita income of \$25,592.
- The 1999 median household income for American Indian and Alaska Natives was \$36,810 compared with \$50,502 for all residents of Massachusetts.

Table 8. Income Characteristics Massachusetts: 1999		
	Massachusetts American Indian and Alaska Natives	Massachusetts
Per Capita Income	\$15,889	\$25,952
Median Household Income	\$36,810	\$50,502
Mean Household Income	\$41,322	\$66,365

Source: U.S. Census Bureau, Census 2000 Summary Tape File 3 (STF3).

F. Education

- American Indians and Alaska Natives have poorer educational attainment when compared with the Massachusetts population as a whole. In Massachusetts in 2000, 28% of the American Indian and Alaska Native population had less than a high school diploma compared with 15% of the state population.
- Only 11% of the American Indian and Alaska Natives in Massachusetts had bachelor's degrees compared with 20% of the state population.

Table 9. Educational Level Massachusetts: 2000		
Education Level Completed	Massachusetts American Indian and Alaska Natives	Massachusetts
Less than high school	28%	15%
High school graduate	27%	27%
Some college	26%	24%
Four-year college graduate	11%	20%
Graduate or professional	8%	14%

Source: U.S. Census Bureau, Census 2000 Summary Tape File 3 (STF3).

G. Poverty

- Twenty-one percent of American Indian and Alaska Natives live below the poverty level as compared with Massachusetts as a whole at 9.3%.
- American Indian families were more than 3 times more likely to live below poverty than those at the state overall.

Table 10. Poverty Level Massachusetts: 1999		
	Massachusetts American Indian and Alaska Natives	Massachusetts
Persons < 100% Poverty	21.0%	9.3%
Families living below poverty	16.0%	5.1%

Source: U.S. Census Bureau, Census 2000 Summary Tape File 3 (STF3).

H. Housing

- The home ownership rate for American Indian and Alaska Natives (alone) (38%) was about half the rate for all of Massachusetts residents (62%) in 2000.

Table 11. Housing Characteristics Massachusetts 2000		
	American Indians/Alaskan Native Race, alone	Massachusetts
Average Household Size	2.67	2.51
Percent Owner Occupied Households	37.7%	61.7%
Percent Live Alone	9.6%	10.8%

Source: U.S. Census Bureau, Census 2000.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

II. Behavioral Risk Factor Surveillance System Data, 2001-2005

The Behavioral Risk Factor Surveillance System (BRFSS) is a continuous, random-digit-dial, telephone survey of adults age 18 and older, and is conducted in all states as a joint collaboration between the Centers for Disease Control and Prevention (CDC) and state Departments of Health. The survey has been conducted in Massachusetts since 1986. The BRFSS collects data on a variety of health characteristics, risk factors for chronic conditions, and preventive behaviors. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing intervention and prevention programs, developing health policy and legislation, and measuring progress toward attaining state and national health objectives. Race and ethnicity data is determined based on self-identification. The BRFSS race category used for this section is “American Indian or Alaska Native”. Forty thousand five hundred and eighty five adults were interviewed in this survey, 318 were Native Americans.

- American Indians were more than twice as likely to report fair or poor health (30%) than were all Massachusetts residents (13%) in the period of 2001-2005.
- American Indians were more than twice as likely to report poor physical (21%) or mental health (18%) than were all Massachusetts residents (8.7% and 9.2%, respectively).
- American Indians (18%) were more than twice as likely to be without health insurance as were all Massachusetts residents (8%).
- American Indian adults (19%) were over twice as likely to report not seeing a doctor over the past year due to cost than were all Massachusetts residents (8%).
- The proportion of American Indian adults who reported current smoking was 63% higher than that of all Massachusetts residents (31% v. 19%).

**Table 12. Behavioral Risk Factor Surveillance System Data
Selected Indicators- Massachusetts: 2001-2005**

	Massachusetts American Indians			Massachusetts		
	N	Percent	95% confidence interval	N	Percent	95% confidence interval
<i>Health Status</i>						
Reported fair or poor health	318	29.6*	22.7-36.5	40,585	12.6	12.2-13.0
15+ days poor physical health	303	20.7*	14.7-26.7	39,653	8.7	8.4 - 9.1
15+ days poor mental health	189	18.1*	10.7-25.5	24,300	9.2	8.7-9.7
<i>Health Risks</i>						
Obese	292	21.2	15.1-27.3	38,204	18.2	17.6-18.6
Engage in leisure physical activity	318	65.4*	58.3-72.5	40,721	78.3	77.8-78.8
<i>Chronic Conditions</i>						
Diabetes	318	8.6	4.3-12.9	40,694	5.9	5.6-6.2
High Blood Pressure	197	26.4	17.8-35.0	25,055	23.8	23.2-24.5
High Cholesterol	192	30.9	21.6-40.1	24,282	26.9	26.2-27.6
<i>Health Insurance, Access & Utilization</i>						
No health insurance	275	18.4*	11.4-25.5	32,222	8.2	7.8-8.6
Could not see doctor due to cost	196	18.8*	11.0-26.7	24,634	7.9	7.4-8.4
<i>Substance Abuse</i>						
Current Smoker	318	31.1*	24.3-38.0	40,581	18.8	18.3-19.3
Former Smoker	318	23.6	17.6-29.6	40,581	28.9	28.3-29.4
Binge Drinker	310	21.1	14.3-27.9	40,264	17.5	17.0-18.0
Heavy Drinker [†]	311	4.2	1.0-7.5	40,139	6.9	6.6-7.3
<i>Screening</i>						
Had mammogram in last 2 years ^{††}	76	73.8	60.7-87.0	9,359	83.4	82.4-84.3
Had pap smear in last 3 years	82	84.5	75.0-94.0	11,249	85.7	84.8-86.6
Had cholesterol checked in last 5 years	193	81.7	74.8-88.6	24,409	80.8	80.1-81.5

[†] Heavy drinking is defined as consumption of more than 60 drinks in the past month for men and more than 30 drinks for women.

^{††} Among women ages 40+ years.

* Statistically significant at $p=0.05$.

Source: Massachusetts Department of Public Health. Massachusetts Behavioral Risk Factor Surveillance System (BRFSS), 2001-2005. Years of data available on each indicator vary since not all questions are asked each year.

MASHPEE WAMPANOAG COMMUNITY HEALTH SURVEY

III. Mashpee Wampanoag Community Health Survey, 2002

In 2002, the Mashpee Wampanoag Tribal Council and the Massachusetts Department of Public Health (MDPH), Division of Chronic Disease and Health Promotion, Bureau of Family and Community Health co-sponsored the Community Health Survey, 2002. This section uses the results from this survey.

Three-hundred and twenty four people (ages 18 and older) were interviewed in their homes by trained interviewers. The survey was modeled on the Massachusetts BRFSS. The results from the Mashpee Wampanoag Tribe are compared with the Massachusetts BRFSS, 2001.

- The percentage of Mashpee Wampanoag adults in poor health was 2.0 times higher than the general adult Massachusetts population. The percentage of Mashpee Wampanoag Tribe members in poor emotional health was 1.5 times higher than the adult Massachusetts population.
- The percentage of Mashpee Wampanoag adults that reported dental care in the previous year was 52% lower than the general adult Massachusetts population.
- The obesity rate for Mashpee Wampanoag adults was 2.4 times higher than the rate for the general adult Massachusetts population.
- The smoking rate for Mashpee Wampanoag adults was 2.6 times higher than the general adult Massachusetts.
- The percentage of Mashpee Wampanoag adults ages 18 and older with diabetes was nearly 2 times higher than the general adult Massachusetts.
- The percentage of Mashpee Wampanoag adults with high blood pressure was 1.4 times higher than the general adult Massachusetts, and the percentage of Wampanoag adults with high cholesterol was 1.3 times higher than the general adult Massachusetts.

**Table 13. Mashpee Wampanoag Community Health Survey
Selected Indicators
Massachusetts: 2002**

	Mashpee Wampanoag		Massachusetts BRFSS - 2001	
	Percent	95% confidence interval	Percent	95% confidence interval
<i>Health Status</i>				
Reported poor health	23.8*	19.1-28.5	12.0	11.2-12.8
15+ days poor emotional health	14.5*	10.7-18.4	9.6	8.9-10.4
<i>Health Insurance, Access & Utilization</i>				
Routine checkup in previous year	76.7	72.1-81.4	79.7	78.6-80.8
Visited dentist for routine checkup in previous year	50.6*	45.1-56.0	76.9	75.2-78.5
Pap test last previous year	73.6	65.9-81.3	76.1	73.6-78.5
<i>Health Risks</i>				
Obese	40.5*	34.9-46.1	16.7	15.7-17.6
Current Smoker	52.4*	45.8-58.9	19.8	18.8-20.8
<i>Chronic Conditions</i>				
Diabetes	10.7*	7.3-14.1	5.5	4.9-6.0
High Blood Pressure	32.6*	27.4-37.7	23.1	22.1-24.1
High Cholesterol	36.8*	31.4-42.1	27.8	26.6-28.9

Source: Massachusetts Department of Public Health. Wampanoag Community Health Survey, 2002.

* Statistically significant at $p=0.05$.

Discussion of Differences between Tribal Surveys and Statewide American Indian Surveys

Tribal surveys, such as the Mashpee Wampanoag Community Health Survey show different outcomes than statewide surveys of American Indians, such as the BRFSS do. (This discussion refers to the BRFSS results shown in the “Behavioral Risk Factor Surveillance System Data, 2001-2005” section of this report.) This difference in results may be because tribal members are reluctant to report negative health risks to a general survey. However, when a survey is done in person within the community, and when it is clear that participation could help improve tribal health, members may be willing to report more negative behaviors. If this is case, the Mashpee Wampanoag Survey, may capture the health risks and health behaviors of tribal members more accurately than statewide surveys.

It should be noted that the Mashpee Wampanoag Survey and the BRFSS survey use different survey modes. The BRFSS is a telephone interview, whereas, the Mashpee Wampanoag Community Health Survey was a face-to-face interview. According to Dillman and Christian¹³, there is evidence that the survey mode can affect respondent answers to questions, even when questions have the same wording. Research has found that telephone respondents were more likely to give socially desirable responses across a range of indicators¹⁴. For instance, in the Mashpee Wampanoag Community Health Survey, tribal members had significantly higher obesity and smoking rates than those of American Indians in the BRFSS.

Another possible reason for the discrepancy in health outcomes between the Mashpee Wampanoag Survey and the BRFSS is that the Mashpee Wampanoag Tribe members (n=324 in 2002) may not be representative of American Indians in Massachusetts as a whole. The BRFSS Survey results are the combined results for 5 years (n=318, 2001 through 2005), and the majority of the American Indians in the BRFSS (90%) were from the following counties: Worcester, Bristol, Hampden, Suffolk, Essex, Middlesex, Plymouth, and Norfolk. Only 10 respondents were from Barnstable County, the county in which the Mashpee reside, and 1 respondent was from Dukes County where the Aquinnah Wampanoag live. Since the BRFSS was done over 5 years, the outcomes could be affected by changes in health behaviors over time.

¹³ Dillman, D. A. and Christian, L. M. (2003). Survey Mode as a Source of Instability in Responses across Surveys. Revised version of a paper presented at the Workshop on Stability of Methods for Collecting, Analyzing and Managing Panel Data, American Academy of Arts and Sciences, Cambridge, MA March 27, 2003. Forthcoming in the journal, Field Methods.

¹⁴ Jäckle, Annette, Caroline Roberts and Peter Lynn (August 2006) 'Telephone versus Face-to-Face Interviewing: Mode Effects on Data Quality and Likely Causes. Report on Phase II of the ESS-Gallup Mixed Mode Methodology Project', ISER Working Paper 2006-41. Colchester: University of Essex.

**NORTH AMERICAN INDIAN
CENTER OF BOSTON
COMMUNITY HEALTH SURVEY**

IV. North American Indian Center of Boston Community Health Survey, 2002

In 2002, the North American Indian Center of Boston (NAICOB) and the Massachusetts Department of Public Health (MDPH), Division of Chronic Disease and Health Promotion, Bureau of Family and Community Health co-sponsored the North American Indian Center of Boston Community Health Survey, 2002. NAICOB is a multi-service agency serving the North American Indian community of greater Boston. The U.S. Indian Health Service is one of several federal agencies that fund the agency. Agencies funded by the U.S. Indian Health Service are required to update their community profile every two to three years. To fulfill this requirement, NAICOB conducted health surveys in 1992, 1995, 1998, and again in 2002.

This section is based on the results from this survey. Respondents comprised of all individuals who were able to demonstrate tribal affiliation or trace their descent to a tribal member. Two hundred and four people (ages 18 and older) were interviewed in their homes, at the Center, or at other locations by trained interviewers. The survey was modeled on the Massachusetts BRFSS. The results from the North American Indian Center of Boston Community Health Survey are compared with those of the Massachusetts BRFSS, 2001.

- The percentage of urban Native Americans living in eastern Massachusetts in poor health was 2.6 times higher than the general adult Massachusetts population.
- The percentage of Native Americans living in eastern Massachusetts in poor emotional health was 2.1 times higher than the adult Massachusetts population.
- Only 46.5% of urban Native Americans in eastern Massachusetts reported dental care in the previous year compared with 76.9% for the general adult Massachusetts population.
- Among urban Native Americans in eastern Massachusetts, obesity rates were 2 times higher than the general adult Massachusetts population.
- The smoking rate for urban Native Americans in eastern Massachusetts was 2.8 times higher than the general adult Massachusetts.
- The percentage of urban Native Americans in eastern Massachusetts with diabetes was 2 times higher than the general adult Massachusetts.

**Table 14. North American Indian Center of Boston Community Health Survey
Selected Indicators
Massachusetts: 2002**

	Urban Native Americans		Massachusetts BRFSS - 2001	
	Percent	95% confidence interval	Percent	95% confidence interval
<i>Health Status</i>				
Reported poor health	31.0*	24.6–37.5	12.0	11.2-12.8
15+ days poor emotional health	20.6*	15.0–26.2	9.6	8.9-10.4
<i>Health Insurance, Access & Utilization</i>				
Routine checkup in previous year	72.1*	65.9–78.4	79.7	78.6-80.8
Dental visit past year	46.5*	39.6–53.5	76.9	75.2-78.5
Pap test last previous year	70.4	61.2–79.6	76.1	73.6-78.5
<i>Health Risks</i>				
Obese	33.7*	27.0–40.3	16.7	15.7-17.6
Current Smoker	55.4*	46.4–64.4	19.8	18.8-20.8
<i>Chronic Conditions</i>				
Diabetes	12.2*	7.4-16.9	5.5	4.9-6.0
High Blood Pressure	28.9	22.6-35.1	23.1	22.1-24.1
High Cholesterol	32.8	26.3-39.3	27.8	26.6-28.9

Source: Massachusetts Department of Public Health. North American Indian Center of Boston Community Health Survey, 2002.

* Statistically significant at $p=0.05$.

Like the Mashpee Wampanoag Community Health Survey of 2002 results, the NAICOB Community Health Survey of 2002 showed poorer outcomes than those of American Indians in the BRFSS. See the “Discussion of Differences between Tribal Surveys and Statewide American Indian Surveys” in the previous section.

BIRTH INDICATORS

V. Birth Indicators, 1999-2004

This section is based on data from the Massachusetts certificate of live birth. Clinical information such as birth weight and prematurity is supplied by hospitals, while demographic and behavioral data such as race and ethnicity and smoking during pregnancy are supplied by the woman who gave birth.

Women are asked to identify their race from five categories: White, Black, Asian/Pacific Islander, American Indian, and Other. Ancestry is self-identified by selecting one of 38 ancestry/ethnicity groups, including Native American (American Indian is used for race, and Native American is used for ethnicity.) Therefore, it is possible to select American Indian as a race or Native American as an ethnicity, or both. Mothers who had origins in India, Asia or other countries except North, Central and South America were excluded.

Table 15 presents the total American Indian (as race and/or ethnicity) outcomes of important birth indicators, which were selected because they provide insight into overall infant health. Table 16 shows the same outcomes grouped by three distinct race and ethnicity groups as provided by the mothers at the time of birth: 1) American Indian as a race only; 2) Native American as an ethnicity only, and 3) Both American Indian as a race and Native American as an ethnicity. Although there is no known significance in providing the choices of “American Indian” as race and “Native American” as ethnicity on the parent worksheet, mothers may have made a distinction between race and ethnicity by selecting one or the other, or both, as can be seen from the way in which outcomes differ depending upon the mothers’ selection.

- From 1999-2004 there were 1,663 births to women who reported their race as American Indian and/or their ethnicity as Native American on the birth certificate and had origins in any of the original peoples of North and South America (including Central America).
- For most birth indicators, American Indian mothers (by either race or ethnicity) had poorer outcomes than Massachusetts as a whole. The percentage of low birthweight infants was slightly lower for American Indians; however, this difference may be due to the small numbers.
- Among the three groups examined, mothers who chose Native American as their ethnicity only, generally had the worst outcomes. The meaning of the difference in outcomes by these categories is a topic for further study.

**Table 15. Selected Birth Indicators
Massachusetts: 1999-2004**

	American Indian Total	Massachusetts Births
Total Births, 1999-2004	1,663	482,713
% low birthweight (less than 2,500 grams)	6.6	7.4
% of mothers smoking during pregnancy	27.6	8.8
% mothers breastfeeding or intending to breastfeed	67.5	75.8
% receiving adequate prenatal care (Kotelchuck Index)	77.3	84.1
% prenatal care in first trimester	64.4	84.0
% public source of prenatal care	50.2	28.3
Teen Births, 1999-2004	209	29,639
% teen births	12.6	6.1

Source: Massachusetts Department of Public Health, Vital Records: Birth Certificates, 1999-2004.

**Table 16. Selected Birth Indicators by American Indian
as Race, Ethnicity, and Both Race and Ethnicity
Massachusetts: 1999-2004**

	American Indian (As Race ONLY)	Native Americans (As Ethnicity ONLY)	Both	Total	Massachusetts Births
Total Births, 1999-2004	209	870	584	1,663	482,713
% low birthweight (less than 2,500 grams)	8.6	6.6	6.0	6.6	7.4
% of mothers smoking during pregnancy	13.0	29.3	30.3	27.6	8.8
% mothers breastfeeding or intending to breastfeed	71.2	66.6	67.5	67.5	75.8
% receiving adequate prenatal care (Kotelchuck Index)	74.4	76.2	80.1	77.3	84.1
% prenatal care in first trimester	64.7	64.0	64.7	64.4	84.0
% public source of prenatal care	46.5	48.3	54.2	50.2	28.3
Teen Births, 1999-2004	24	104	81	209	29,639
% teen births	11.5	12.0	13.9	12.6	6.1

Source: Massachusetts Department of Public Health, Vital Records: Birth Certificates, 1999-2004.

- Thirteen percent of mothers selected American Indian as their *race only*; 52% selected Native American as their *ethnicity only*; and 35% of mothers selected *both* American Indian as a race and Native American as their ancestry. Most mothers who selected Native American as an ethnicity only also specified their tribal affiliation; whereas, a very small percentage (<1%) of mothers who selected American Indian as a race only specified a tribe. In addition, the majority of mothers (99%) who selected Native American as an ethnicity only were born in the United States; whereas 82% of mothers who selected American Indian as a race only were U.S.-born.

MORTALITY INDICATORS

VI. Mortality Indicators, 1994-2004

Data on mortality are based on information from death certificates filed with the Massachusetts Registry of Vital Records and Statistics. Physicians and medical examiners assign cause of death through a system that acknowledges the possibility of multiple causes. Demographic information on death certificates, such as age, race, Hispanic ethnicity, gender, educational attainment, marital status, and occupation is recorded by the funeral director based on information provided by an informant, usually a family member, or, in the absence of an informant, based on observation. Race and Hispanic ancestry are based on responses to two questions: one to identify race and the other to ascertain whether the decedent was of Hispanic ancestry. Race/Hispanic ethnicity categories presented here are mutually exclusive; persons of Hispanic ethnicity are not included in other race categories. The mortality race category used for this section is "Indian (American, Alaskan, Canadian, Mexican Indian, Eskimo and Aleut)". All rates are age-adjusted per 100,000 residents using the 2000 U.S. standard population.

Death rates for Hispanic, American Indian, and Asian/Pacific Islander (API) persons should be interpreted with caution because of inconsistencies in reporting race on the death certificate as compared with race on censuses, surveys, and birth certificates. Studies have shown underreporting on death certificates of American Indians, API, and Hispanic decedents, and undercounts of these groups in the censuses^{15,16,17}.

- Consistent with having a younger population, the age-adjusted death rate among American Indians in Massachusetts for the period of 1994-2004 was over half the rate of the general population (392.8 vs. 839.6 deaths per 100,000).

Table 17. Number and Age-adjusted Death Rates* Native Americans and total Massachusetts residents: 1994-2004			
Massachusetts American Indians		Massachusetts	
Number of Deaths	Age-Adjusted Rate	Number of Deaths	Age-Adjusted Rate
443	392.8	611,825	839.6

* Deaths per 100,000 population, and are age-adjusted to the 2000 U.S. Population. 2000-2004 data use 2000-2004 new population estimates from the Census Bureau's Population Estimation Program.

Source: Massachusetts Department of Public Health, Vital Records: Death Certificates, 1994-2004.

¹⁵ Rosenberg HM, Maurer JD, Sorlie PD, et al. Quality of death rates by race and Hispanic origin: A summary of current research, 1999. National Center for Health Statistics. *Vital Health Stat* 2 (128). 1999.

¹⁶ Sorlie PD, Rogot E, Johnson NJ. Validity of demographic characteristics on the death certificate. *Epidemiology* 3(2):181-4. 1992.

¹⁷ Arias E. Quality of race and Hispanic origin reporting on death certificates in the United States. Presented at the 2004 NCHS Data Users Conference. Washington, DC, July 14, 2004. Available at: <http://www.cdc.gov/nchs/ppt/duc2004/arias.pps>.

- For the period of 1994-2004, the five leading causes of death for American Indians living in Massachusetts were cancer, heart disease, injuries, stroke, and pneumonia & influenza; while the five leading causes of death for the state's overall population were heart disease, cancer, stroke, chronic lower respiratory disease, and injuries.

**Table 18. Leading Causes of Death
American Indians and Massachusetts residents: 1994-2004**

Massachusetts American Indians	Massachusetts
Cancer	Heart Disease
Heart Disease	Cancer
Injuries & Poisonings	Stroke
Stroke	Chronic Lower Respiratory Disease
Pneumonia & Influenza	Injuries & Poisonings

Source: Massachusetts Department of Public Health, Vital Records: Death Certificates, 1994-2004.

ICD-9 codes for causes of death are as follows: Cancer: 140-208; Heart Disease: 390-398, 402, 404-429; Stroke: 430-438; Pneumonia/influenza: 480-487; CLRD: 490-496; Injuries & Poisonings: E800-E999; Chronic Liver Disease: 571. ICD-10 Codes for causes of death are as follows: CancerC00-C97; Heart Disease: I00-I09, I11, I13, I20-I51; Stroke: I60-I69; Pneumonia/influenza: J10-J18; CLRD: J40-J47; Injuries & Poisonings: V01- Y98; Chronic Liver Disease: K70, K73, and K74.

**BUREAU OF SUBSTANCE ABUSE
SERVICES - SUBSTANCE ABUSE
TREATMENT PROGRAMS**

VII. Admissions to BSAS Substance Abuse Treatment Programs, 2001-2004

The DPH Bureau of Substance Abuse Services (BSAS) oversees the substance abuse prevention and treatment services in the Commonwealth. Its responsibilities include licensing programs and counselors, funding and monitoring prevention and treatment services, providing access to treatment for the indigent and uninsured, developing and implementing policies and programs, and, tracking substance abuse trends in the state. Their data on race and ethnicity are self-reported. It should be noted that the *use* of substance abuse treatment programs is not synonymous with the *need for access* to these programs. The race category used for this section is "American Indians".

- In the period of 2001-2004, while American Indians made up less than one percent of the overall number of those admitted or treated in substance abuse treatment programs, their rate of admission 2.3 times that of all residents in Massachusetts.

**Table 19. Admissions to BSAS Substance Abuse Treatment Programs
Massachusetts: 2001-2004**

	Count	Crude Rate per 100,000 (Uses 2000 Massachusetts population estimates)
Massachusetts American Indian	1,934*	4,208.0**
Males	1,273 (66%)	
Females	661 (34%)	
Massachusetts	465,207	1,831.8
Males	338,850 (73%)	
Females	126,342 (27%)	

* Admissions of American Indians represent 0.4% of total Massachusetts admissions.

** Unadjusted for age differences in American Indian and Massachusetts overall populations.

Source: Massachusetts Department of Public Health, Bureau of Substance Abuse Services. Includes treatment admissions to substance abuse treatment programs funded by the Bureau of Substance Abuse Services, Massachusetts Department of Public Health.

- In the period of 2001-2004, American Indians between the ages of 35-39 years had the highest age-specific rates for admissions to substance abuse treatment programs of all residents in Massachusetts. This age group had a rate that was 2.4 times higher than the corresponding rate for the state overall.

**Table 20. Admissions to BSAS Treatment Programs, Age-Specific Rates per 100,000
Massachusetts: 2001-2004**

Age Group	Massachusetts American Indian		Massachusetts	
	Number of Admissions	Age-Specific Rate (per 100,000) Uses 2000 Massachusetts population estimates	Number of Admissions	Age-Specific Rate (per 100,000) Uses 2000 Massachusetts population estimates
25-29 years	265	8,049.8	62,230	3,584.5
30-34 years	296	8,486.2	72,804	3,693.7
35-39 years	351	8,688.1	79,321	3,668.2
40-44 years	336	8,046.0	71,076	3,401.4
45-49 years	232	6,480.4	48,046	2,600.2
50-54 years	108	3,648.6	24,237	1,472.8
55-59 years	--	--	9,793	789.8
60-64 years	--	--	4,402	465.5

Source: Massachusetts Department of Public Health, Bureau of Substance Abuse Services.

-- Small numbers and rates based on small numbers suppressed for confidentiality reasons.

- Forty-eight percent of admissions to substance abuse treatment programs among American Indians were due to alcohol abuse compared with 44% for admissions among all residents in Massachusetts. Thirty percent of admissions among American Indians were due to heroin compared with 37% for the state overall.

**Table 21. Admissions by Primary Drug of Choice
Massachusetts: 2001-2004**

Primary Drug of Choice	Massachusetts American Indians		Massachusetts	
	Number of Admissions	Percent*	Number of Admissions	Percent*
Alcohol	941	48.7	206,368	44.4
Cocaine	90	4.6	17,363	3.7
Crack	76	3.9	15,993	3.4
Heroin	597	30.9	172,157	37.0
TOTAL ADMISSIONS	1,934	100%	465,207	100%

Source: Massachusetts Department of Public Health, Bureau of Substance Abuse Services.

* Percents do not add up to 100%.

EARLY INTERVENTION PROGRAM UTILIZATION

VIII. Early Intervention Program Utilization, 2001-2003

Early Intervention (EI) in Massachusetts is a statewide, integrated, developmental service available to families of children between birth and three years of age. Children may be eligible for EI if they have developmental difficulties due to identified disabilities, or if typical development is at risk due to certain birth or environmental circumstances. EI provides family-centered services that facilitate the developmental progress of eligible children. EI helps children acquire the skills they will need to continue to grow into happy and healthy members of the community. The race category used for this section is “American Indians”.

- For the period of 2001-2003, there were 99 American Indian active clients and 50 new Native American clients enrolled in the Early Intervention program in the state. Crude rates for both active and new clients were lower for American Indians compared with Massachusetts overall.

Table 22. Early Intervention Program Utilization Massachusetts: 2001-2003				
	Massachusetts American Indians		Massachusetts	
	Number	Crude Rate* per 100,000	Number	Crude Rate* per 100,000
Active Clients	99	3,767.1	84,205	8,893.1
New Cases	50	1,902.6	43,486	4,592.7

* Population-based rates calculated using 2000 Census-Children ages 0-3 who are American Indian and Alaska Natives ALONE.

Source: Massachusetts Department of Public Health, Center of Community Health. Early Intervention Program, 2001-2003.

DEPARTMENT OF EDUCATION DATA

IX. Department of Education Data (DOE)

A. Enrollment Data¹⁸

This section includes all students (regular education and special education students) enrolled in public schools. Prior to October 1, 2001 all enrollment data was collected using aggregate reporting tools. Starting in October 2001 enrollment data was collected electronically at the student level. Race and ethnicity information is collected from parents or guardians via the enrollment form.

- For the school year 2004-2005, 94% of American Indian school-age children were enrolled in public schools compared with 88% for the state overall.

Table 23. School Enrollment Massachusetts: 2004-2005				
	MA American Indians		Massachusetts	
	Number	Percent	Number	Percent
Total Enrollment	3,417	100%	1,106,384	100%
Public School Enrollment	3,227	94.4%	975,911	88.2%
Private School Enrollment*	190	5.6%	130,473	11.8%

* Private schools are not required to provide these data to the Department of Education.

Source: Massachusetts Department of Education; 2004-2005 school year.

B. Dropout Data¹⁹

This section provides information about students who dropped out of school during the 2002-2003 reporting year. Race and ethnicity information is collected from parents via the enrollment form. A “dropout” is defined as a student in grade nine through twelve who leaves school prior to graduation for reasons other than transfer to another school and does not re-enroll before the following October 1.

- Dropout rates varied widely by race and ethnicity in Massachusetts. Among American Indian high school students, 4.8% dropped out in the 2002-2003 school year compared with 2.6 for white students and 3.3% for the state overall.

¹⁸ Massachusetts Department of Education; 2004-2005 school year.

¹⁹ Massachusetts Department of Education; 2002-2003 school year. A dropout is defined as a student in grade nine through twelve who leaves school prior to graduation for reasons other than transfer to another school and does not re-enroll before the following October 1.

Table 24. School Dropout Rates Massachusetts: 2002-2003				
	Massachusetts American Indians		Massachusetts	
	Number	Percent	Number	Percent
Total Enrollment	869	(100%)	281,939	(100%)
Dropouts* in Public Schools	42	4.8%	9,389	3.3%

* Private schools are not required to provide these data to the Department of Education

Source: Massachusetts Department of Education; 2002-2003 school year.

C. Retention Data²⁰

The following section presents data on grade retention rates in Massachusetts public schools. The Massachusetts Department of Education defines “retention” as repeating the grade in which a student was enrolled during the previous school year. Race and ethnicity information is collected from parents or guardians via the enrollment form.

- In all, 23,098 students (2.6%) of the 887,175 students enrolled in grades one through 12 in the 2003-2004 school year were retained and repeated a grade. Among race and ethnicity groups, 1.7% of white students were retained, as were 2.4% of Asians, 3.6% of American Indians and 5.8% of African Americans and Hispanics.

Table 25. School Retention Rates Massachusetts: 2003-2004				
	Massachusetts American Indians		Massachusetts	
	Number	Percent	Number	Percent
Total Enrollment	2,764	(100%)	887,175	(100%)
Grade Retention* Rates	99	3.6%	23,098	2.6%

* Private schools are not required to provide these data to the Department of Education. Data are based on student-level data submitted via the Student Information Management System (SIMS).

Source: Massachusetts Department of Education; 2003-2004 school year.

²⁰ Massachusetts Department of Education; Grade Retention in Massachusetts Public Schools: 2003-04. Retentions are determined for all Massachusetts public school students in grades one through twelve. Any student reported to be in the same grade in both October 2002 and October 2003 is counted as a retained student for the 2003-04 school year.

D. Competency Determination Data²¹

This section provides data on the progress of students in the class of 2005 in meeting the Competency Determination through the standard MCAS test, MCAS Alternate Assessment, and the MCAS Appeals Process. Race and ethnicity information is collected from parents or guardians via the enrollment form.

- In 2003, in the Class of 2005, 75% of all students passed both the English Language Arts and Mathematics Competency Determination Exams, as compared with 62% of American Indians.

**Table 26. Percent of Students Attaining the Competency Determination
Massachusetts: Class of 2005**

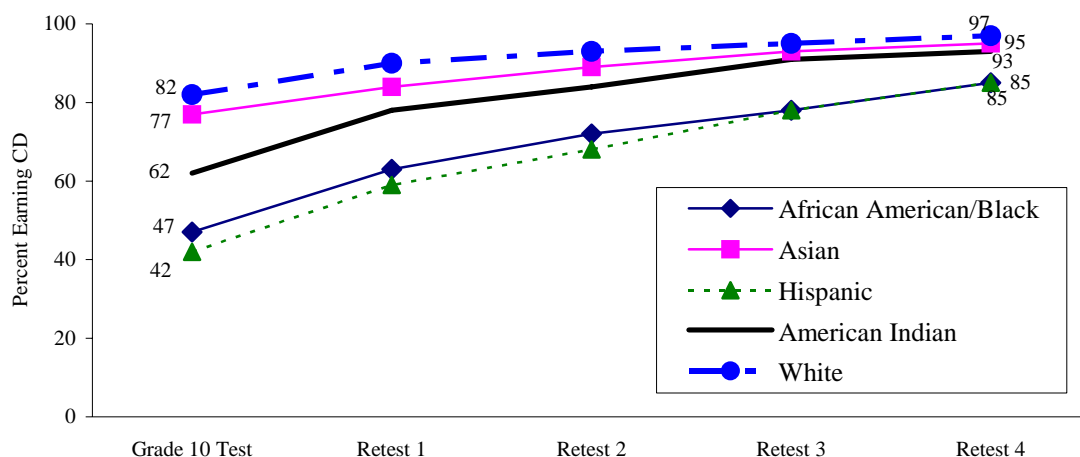
	<u>Grade 10 Test</u>	<u>Retest 1</u>	<u>Retest 2</u>	<u>Retest 3</u>	<u>Retest 4</u>
American Indians	62%	78%	84%	91%	93%
Massachusetts	75%	84%	88%	92%	94%

Private schools are not required to provide these data to the Department of Education

Source: Massachusetts Department of Education; Class of 2005.

- Figure 2 shows the percent of students in the class of 2005 by race/ethnicity who passed grade 10 tests in English Language Arts and Mathematics on their first attempt, and the cumulative percent of students who have attained the Competency Determination through the four retesting opportunities.

**Figure 2. Percent of Students Attaining the Competency Determination
Massachusetts: Class of 2005**



²¹ Massachusetts Department of Education; Progress Report on Students Attaining the Competency Determination Statewide and by School and District: Classes of 2005 and 2006. http://www.doe.mass.edu/mcas/2005/results/CDreport_0205.pdf.

E. Plans of High School Graduates²²

The Massachusetts Department of Education collects data annually from public high schools regarding the plans of their graduates. This section summarizes the data for the Class of 2003. Race and ethnicity information is collected from parents or guardians via the enrollment form.

- In all, of the 55,987 graduates in the class of 2003, 75% planned to attend college, with 56% headed to a four-year college and 19% headed to a two-year school. The percentage of graduates heading to a two- or four-year college varied widely among different ethnic groups with 64.2% of American Indians compared with 75.1% for all students in the state.
- American Indians (21.9%) had the highest percentage of students who were planning to work after graduating from high school in 2003 than any other racial and ethnic group.

**Table 27. Percentage of Graduates by Plans
Massachusetts: Class of 2003**

	Public College		Private College		<u>Military</u>	<u>Work</u>	<u>Other*</u>	<u>Data Not Available</u>
	<u>2-Year</u>	<u>4-Year</u>	<u>2-Year</u>	<u>4-Year</u>				
American Indian (n=137)	19.0	16.8	2.9	25.5	2.2	21.9	2.9	8.8
Total (n=55,987)	17.3	24.8	2.3	30.7	2.2	11.6	3.3	7.8

* Attending Other Post-Secondary Education and "Other".

Private schools are not required to provide these data to the Department of Education

Source: Massachusetts Department of Education; Class of 2003.

F. Youth Risk Behavior Survey²³

The Massachusetts Department of Education conducts the Youth Risk Behavior Survey (YRBS) annually, which randomly selects public high schools in Massachusetts to survey on issues relating to leading causes of morbidity and mortality among youth and adults in the United States. The survey is voluntary and anonymous. Race and ethnicity is self-reported. The race category used for this section is "American Indians or Alaskan Natives".

²² Massachusetts Department of Education; Plans of High School Graduates: Class of 2003.

²³ Massachusetts Department of Education; Youth Risk Behavior Survey: 1993-2003.

- For the period of 1993-2003, 22% of all students reported smoking their first cigarette before age 13; in comparison, 42% of American Indian students reported smoking before age 13.
- During the same time period, 30% of all students smoked a cigarette in the 30 days before the survey (i.e. current smoking). The highest rate of smoking among students was observed in American Indian students (44%).
- Close to 30% of all students had their first drink of alcohol before age 13 compared to half of American Indian students (51%).
- For the period of 1993-2003, 7% of all high school students used methamphetamines (also called crank, speed, crystal or ice) at least once in their lifetimes compared with 29% of American Indian students.
- Nine percent of all high school students reported being involved in a gang in the 12 months before the survey during 1993-2003. As a comparison, 30% of American Indian students were members of a gang.
- According to their Body Mass Index (BMI),²⁹ for the period of 1993-2003, 17% of Massachusetts high school students were at risk of becoming overweight and 9% were overweight at the time of the survey. As a comparison, 19% of American Indian students were at risk of becoming overweight and 12% were overweight.
- For the period of 1993-2003, 9% of youth reported attempting suicide in the 12 months before the survey, in comparison, 25% of American Indian students attempted suicide.

**Table 28. Youth Risk Behavior Survey Data
Selected Indicators
Massachusetts High School Students: 1993-2003**

	Massachusetts American Indians	All other Youth in Massachusetts
Number of students	240	22,991
	<u>Percent</u>	<u>Percent</u>
Smoked Cigarettes in past month	43.5	29.7
Cigarette Smoking before age 13	41.6	21.7
Alcohol use before age 13	51.3	29.1
Lifetime Methamphetamines use	29.1	7.0
Lifetime Cocaine use	29.3	7.7
At risk of becoming overweight*	19.1	17.4
Overweight*	11.6	9.0
Member of gang past year	30.3	8.7
Attempted suicide past year	24.5	9.2

Source: Massachusetts Department of Education; 1993-2003.

Body Mass Index measures height/weight ratio, and is calculated by dividing self reported weight in kilograms by the square of self-reported height in meters.

* Since 1999, the YRBS has asked students to report actual height and weight, thus permitting calculation of BMI. Among adults, a BMI of 25 or over is considered overweight and a BMI of 30 or over is considered obese. Different benchmarks are applied to children and adolescents, depending on age and gender. For example, according to standards obtained from the Centers for Disease Control and Prevention, a 16 year-old male with a BMI of 24.55 or greater is considered at risk of becoming overweight, and a BMI of 27.88 or greater is considered overweight. See: Kuczmarski, R.J., Ogden, C.L., Grummer-Strawn, L.M., et al. (2000). CDC growth charts: United States. Advance data from vital and health statistics; no. 314. Hyattsville, MD: National Center for Health Statistics.

APPENDIX

SELF DESIGNATION OF RACE AND ETHNICITY

The data in this report are taken from the surveys and datasets listed in the Data Sources section. The data on race and ethnicity are collected using different questions and methods. The “gold standard” in collecting race (and ethnicity/and tribal affiliation) data is “self report,” that is, asking individuals to identify their own race. This usually means that a person chooses their race or races from a list, or that they offer an alternative race (either spoken or written) which is not on the list. Other methods of race ascertainment include observation, informant, and surname. Because these methods are susceptible to racial stereotyping, they are not recommended.

The sources of the data presented in this document differ on their collection methods for race/ethnicity/tribal affiliation data.

U.S. Census 2000 Questionnaire (Short Form)

7. Is Person 1 Spanish/Hispanic/Latino? Mark ☒ the “No” box if **not** Spanish/Hispanic/Latino.

<input type="checkbox"/> No, not Spanish/Hispanic/Latino	<input type="checkbox"/> Yes, Puerto Rican
<input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano	<input type="checkbox"/> Yes, Cuban
<input type="checkbox"/> Yes, other Spanish/Hispanic/Latino — <i>Print group.</i> ➤	

8. What is Person 1’s race? Mark ☒ **one or more** races to indicate what this person considers himself/herself to be.

<input type="checkbox"/> White		
<input type="checkbox"/> Black, African Am., or Negro		
<input type="checkbox"/> American Indian or Alaska Native — <i>Print name of enrolled or principal tribe.</i> ➤		

<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Japanese	<input type="checkbox"/> Native Hawaiian
<input type="checkbox"/> Chinese	<input type="checkbox"/> Korean	<input type="checkbox"/> Guamanian or Chamorro
<input type="checkbox"/> Filipino	<input type="checkbox"/> Vietnamese	<input type="checkbox"/> Samoan
<input type="checkbox"/> Other Asian — <i>Print race.</i> ➤		<input type="checkbox"/> Other Pacific Islander — <i>Print race.</i> ➤

☐ Some other race — *Print race.* ➤

5 Is this person Spanish/Hispanic/Latino? Mark ☒ the "No" box if **not** Spanish/Hispanic/Latino.

☐ White

☐ Black, African Am., or Negro

☐ American Indian or Alaska Native — *Print name of enrolled or principal tribe.* 7

- ☐ Asian Indian
☐ Chinese
☐ Filipino
☐ Japanese
☐ Korean
☐ Vietnamese
☐ Other Asian — *Print race.*
- ☐ Native Hawaiian
☐ Guamanian or Chamorro
☐ Samoan
☐ Other Pacific Islander — *Print race.*

70

Massachusetts Births – Parent Worksheet

MOTHER'S RACE (Please mark the one category that best describes the mother's race):

- 1 ☐ White
- 2 ☐ Black
- 3 ☐ Asian/Pacific Islander
- 4 ☐ American Indian
- 5 ☐ Other (specify): _____

MOTHER'S ANCESTRY

Please mark the *one* category that *best describes* the mother's ancestry or ethnic heritage:

HISPANIC/LATINA

- 1 ☐ Puerto Rican
- 2 ☐ Dominican
- 3 ☐ Mexican
- 4 ☐ Cuban
- 5 ☐ Colombian
- 6 ☐ Salvadoran
- 7 ☐ Other Central American (specify): _____
- 8 ☐ Other South American
(specify): _____
- 9 ☐ Other Hispanic/Latina (specify): _____

ASIAN/PACIFIC ISLANDER

- 10 ☐ Chinese
- 11 ☐ Vietnamese
- 12 ☐ Cambodian
- 13 ☐ Asian Indian
- 14 ☐ Korean
- 15 ☐ Filipino
- 16 ☐ Japanese
- 17 ☐ Laotian
- 18 ☐ Pakistani
- 19 ☐ Thai
- 20 ☐ Hawaiian
- 21 ☐ Other Asian/Pacific Islander (specify): _____

PORTUGUESE SPEAKING

- 22 ☐ Cape Verdean
- 23 ☐ Brazilian
- 24 ☐ Other Portuguese
(specify): _____

WEST INDIAN/CARIBBEAN ISLANDER

25 ☐ Haitian
 26 ☐ Jamaican
 27 ☐ Barbadian
 28 ☐ Other West Indian/Caribbean Islander
 (specify): _____

AFRICAN/AFRICAN AMERICAN

29 ☐ African-American/ Afro-American 30 ☐ Nigerian
 31 ☐ Other African
 (specify): _____

MIDDLE EASTERN

32 ☐ Lebanese
 33 ☐ Iranian
 34 ☐ Israeli
 35 ☐ Other Middle Eastern
 (specify): _____

AMERICAN ANCESTRY

36 ☐ Native American/ American Indian (specify tribe/affiliation):

 37 ☐ American

EUROPEAN and OTHER ancestries

38 ☐ European
 (specify): _____
 39 ☐ Other
 (specify): _____

MOTHER'S LANGUAGE PREFERENCE

(In what language does the mother prefer to read or discuss health-related materials?)

1 <input type="checkbox"/> English	6 <input type="checkbox"/> Haitian Creole	11 <input type="checkbox"/> Russian
2 <input type="checkbox"/> American Sign Language (ASL)	7 <input type="checkbox"/> Hmong	12 <input type="checkbox"/> Spanish
3 <input type="checkbox"/> Arabic	8 <input type="checkbox"/> Lao	13 <input type="checkbox"/> Vietnamese
4 <input type="checkbox"/> Cambodian	9 <input type="checkbox"/> Mandarin	14 <input type="checkbox"/> Other (specify):
5 <input type="checkbox"/> Cantonese	10 <input type="checkbox"/> Portuguese	_____

U.S. Deaths – Death Certificate (NCHS)

<p>53. DECEDENT'S RACE (Check one or more races to indicate what the decedent considered himself or herself to be)</p> <ul style="list-style-type: none"> * <input type="checkbox"/> White * <input type="checkbox"/> Black or African American * <input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribe) _____ * <input type="checkbox"/> Asian Indian * <input type="checkbox"/> Chinese * <input type="checkbox"/> Filipino * <input type="checkbox"/> Japanese * <input type="checkbox"/> Korean * <input type="checkbox"/> Vietnamese * <input type="checkbox"/> Other Asian (Specify) _____ * <input type="checkbox"/> Native Hawaiian * <input type="checkbox"/> Guamanian or Chamorro * <input type="checkbox"/> Samoan * <input type="checkbox"/> Other Pacific Islander (Specify) _____ * <input type="checkbox"/> Other (Specify) _____

Massachusetts Deaths – Death Certificate

<p>WAS DECEDENT OF HISPANIC ORIGIN? (If yes, Specify Puerto Rican, Dominican, Cuban, etc.) <input type="checkbox"/> NO <input type="checkbox"/> YES 8a Specify: _____</p>	<p>RACE (e.g. White, Black, American Indian, etc.) (Specify): 8b _____</p>
--	--

GLOSSARY

Census Terminology

Note that AIAN is used in the demographics section. In this publication, the following will be used:

AIAN = American Indian and Alaska Native

“alone” = indicates the choice of the single-race

“two or more races” = indicates that more than one race was marked

“alone or in combination” = all persons who indicated the race

Crude Rate

An estimate of the proportion of a population that had the event during the year. The numerator is the number of persons who had an event during the year and the denominator is the size of the population. The crude rate in a population is calculated by the formula:

$$\text{Crude rate} = \frac{\text{Number of events in a year}}{\text{Number of residents}} \times 100,000$$

Age-Adjusted Rate

A summary rate designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. Age-adjusted rates are useful when comparing death rates from different populations or in the same population over time. For example, if one wished to compare the 1998 death rates between Barnstable County (Cape Cod) and Hampshire County, the age-adjusted formula would account for the fact that 24% of the Barnstable County residents were 65 years of age or older, whereas only 11% of the Hampshire County residents were in this age group.

Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of a standard population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined. (Please see example below).

The 2000 U.S. projected population is used as the standard population in this document for consistency with data published by the National Center for Health Statistics (NCHS). **ONLY RATES USING THE SAME STANDARD POPULATION CAN BE COMPARED.** All age-adjusted rates published in this report have been re-calculated using the 2000 U.S. standard population. These rates should NOT be compared with age-adjusted rates previously published which used the 1940 U.S. standard population.

Example: Calculation of 1999 Age-adjusted Mortality Rate, Massachusetts:
All Causes of Death

A	B	C	D	E	F	G
Age group (in years)	# of deaths (1999)	Population (1998)	1940 U.S. standard	2000 U.S. standard	Age-adjusted rate (using 1940 standard) =[((B/C)*D)*100,000]	Age-adjusted rate (using 2000 standard) =[((B/C)*E)*100,000]
< 1	418	79,860	0.015343	0.013818	8.0	7.2
1-4	65	320,000	0.064718	0.055317	1.3	1.1
5-14	100	806,670	0.170355	0.145565	2.1	1.8
15-24	407	883,830	0.181677	0.138646	8.4	6.4
25-34	701	1,005,337	0.162066	0.135573	11.3	9.5
35-44	1,696	1,019,365	0.139237	0.162613	23.2	27.1
45-54	2,870	818,660	0.117811	0.134834	41.3	47.3
55-64	4,561	495,555	0.080294	0.087247	73.9	80.3
65-74	9,782	442,003	0.048426	0.066037	107.2	146.1
75-84	17,397	299,482	0.017303	0.044842	100.5	260.5
85+	17,765	120,501	0.002770	0.015508	40.8	228.6
Total					418.0	815.9

Age-Specific Death Rate

A rate for a specified age group. Age-specific death rates are calculated by dividing the actual number of deaths in a given year for a specific age group by the population in that age group for that year. The numerator and denominator refer to the same age group.

$$\text{Age-specific death rate (ages 25-34)} = \frac{\text{Number of deaths among residents ages 25-34 in a given year}}{\text{population ages 25-34 in that year}} \times 100,000$$

Population

Population counts are based on U.S. decennial census counts, and population estimates are calculated for intercensal years. For 1981-1989, population estimates are derived as linear interpolations from the 1980 and 1990 census. For 1991-1995, population estimates are based on MISER's annual estimates released in September 1999. Population estimates for 1996 and 1997 are based on MISER's annual estimates released in November 1999. Population estimates for 1998 population are based on MISER's annual estimates released in September 2000.

The source of the 2000 population estimates for Massachusetts is the Massachusetts Department of Public Health (DPH) Race-Allocated Census 2000 Estimates (MRACE) file. This file is based upon the U.S. Census 2000 SF1 file (released June, 2001) for Massachusetts, which contains data on population and housing for the 351 towns, 14 counties, and the state overall.

The DPH file was derived from the Census 2000 file by allocating persons who indicated “some other race” or multiple races to the conventional DPH race categories: “White”, “Black or African American”, “Asian” and “Native American.” In Census 2000, unlike previous censuses, respondents were able to classify themselves by Hispanic ethnicity and by single or multiracial categories, including “some other race.” In order make the DPH Population 2000 file consistent with previous years’ population files, the DPH Population 2000 file maintains the prior race and Hispanic categories.

The 2004 population file was produced by the National Center for Health Statistics (NCHS) in collaboration with the Census Bureau’s Population Estimation Program. Each year, in addition to the most recent year’s population estimates, the Census Bureau also revises the previous year’s estimates including the Census 2000 estimates. The 2004 population estimates file includes new estimates for 2000-2003. The NCHS takes the Census Bureau population estimates file and reallocates the multiple race categories required by the 1997 Office of Management and Budget (OMB) back into the four race categories specified in the 1977 OMB specifications so that the estimates will be compatible with previous years’ populations.

Statistical Significance

The statistical significance of an outcome or comparison is the probability that the outcome occurred by pure chance. We refer to outcomes that were unlikely to have occurred by chance as “statistically significant” and those that are likely to have occurred by chance as “not statistically significant.” The probability of error (or degree of uncertainty) that we use to determine if our observed result is statistically significant is 5% ($p=.05$), which means that there is a 5% probability that we are in error in stating that our finding is “statistically significant.” On the other hand, we are 95% certain that our result *is* significant. We use several statistical tools to determine if an outcome is statistically significant including comparing confidence intervals and regression analysis.

ICD-10 and ICD-9 Codes Used in this Publication
(Sorted Cause of Death)

<u>Cause of Death</u>	<u>ICD-10 Code</u>	<u>ICD-9 Code</u>
Alzheimer's Disease	G30	331.0
Cancer (Malignant Neoplasms)	C00-C97	140-208
of bladder	C67	188
of cervix uteri	C53	180
of colon, rectum, rectum and anus	C18-C21	153-154, 159.9
of corpus uteri and uterus, part unspecified	C54-C55	179,182
of esophagus	C15	150
of female breast	C50	174
Hodgkin's Disease	C81	201
of kidney and renal pelvis	C64-C65	189.0-189.1
Leukemia	C91-C95	202.4, 204-208
of meninges, brain & other parts of central nervous system	C70-C72	191-192
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203
Non-Hodgkin's lymphoma	C82-C85	200, 202 (except 202.4)
of ovary	C56	183.0
of prostate	C61	185
of stomach	C16	151
of pancreas	C25	157
of trachea, bronchus and lung	C33-C34	162
Certain conditions originating in the perinatal period (Perinatal Conditions)	P00-P96	760-779
Chronic liver disease and cirrhosis	K70, K73-K74	571
Chronic lower respiratory diseases¹	J40-J47	490-496
Congenital malformations, deformations, and chromosomal abnormalities	Q00-Q99	740-759
Diabetes Mellitus	E10-E14	250
External causes of injuries and poisonings (intentional, unintentional and of undetermined intent)	V01-Y98	E800-E999
Homicide	X85-Y09, Y87.1	E960-E969
Injuries of undetermined intent	Y10-Y34, Y87.2, Y89.9	E980-E989
Suicide	X60-X84, Y87.0	E950-E959
Accidents (Unintentional Injuries)	V01-X59	E800-E949
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20- V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0- V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825 E850-E869, E880-E928, E929.2-E929.9
Unintentional non-transport injuries	W00-X59, Y86	
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404-429
Infectious and parasitic diseases	A00-B99	001-139
Human Immunodeficiency Virus (HIV) disease (AIDS)	B20-B24	042-044
Septicemia	A40-A41	038
Influenza and pneumonia	J10-J18	480-487
Nephritis	N00-N07, N17-N19, N25-N27	580-589
Stroke (Cerebrovascular disease)	I60-I69	430-438
Signs and symptoms	R00-R99	780-797, 798.1-798.9, 799
Sudden infant death syndrome (SIDS)	R95	798.0
Terrorism	U01-U02 (homicide), U03 (suicide)	--

1. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

DATA SOURCES

Census Bureau

The U.S. Census Bureau used two different forms to collect Census 2000 data. A short form (100% data) with seven basic questions went to all households and a long form with these same questions and additional questions went to a sample of households. The questions asked on the short form included: name; sex; age; household relationship; Hispanic origin; race, and whether the home was owned or rented. About 83 percent of households received the short form. The information that is tabulated from the questions asked of every person and housing unit is called the 100-percent or short-form data. The long-form questionnaire included the same seven population and housing questions plus additional inquiries. On average, 1 in every 6 households received the long form. The information that is tabulated from the questions asked of this sample of persons and housing units is called sample or long-form data. The Census race category for American Indians is "American Indian and Alaska Native".

Summary File 1 (SF 1) presents counts and basic cross-tabulations of information collected from all people and housing units. This information includes age, sex, race, Hispanic or Latino origin, household relationship, and whether the residence is owned or rented.

Summary File 2 (SF 2) provides population and housing characteristics for many detailed race and Hispanic or Latino categories, and American Indian and Alaska Native tribes. Thresholds for SF2: Two "rules of 100" are applied to the SF 2 tables:

- No tables are available for geographic areas having a population of less than 100.
- Tables are repeated only for the race groups, American Indian and Alaska Native tribes, and Hispanic or Latino groups having a population of 100 or more within the geographic area.
- SF2 includes data for 78 American Indian and Alaska Native tribes (reflecting 39 individual tribes)

Summary File 3 (SF 3) provides information from the long-form plus additional questions on income, education, occupation, housing rent and value.

Summary File 4 (SF 4) contains tabulations of population and housing data collected from a sample of the population. The data are shown down to the census tract level for 336 race, Hispanic or Latino, American Indian and Alaska Native, and ancestry categories. Thresholds for SF4:

- Tables for any population group excluded from SF 2 because the group's total population in a specific geographic area did not meet the threshold of 100 people are excluded from SF 4.
- Tables in SF 4 shown for any of the above population groups will only be shown if there are at least 50 unweighted sample cases in a specific

geographic area. The same 50 unweighted sample cases also applied to ancestry iterations.

- SF4 includes data for 78 American Indian and Alaska Native tribes (reflecting 39 individual tribes)

U.S. Census Bureau & National Center for Health Statistics (NCHS) Modified Age/Race, Sex (MARS) File

In addition to the Census 2000 Summary Files, the Census Bureau, in collaboration with the National Center for Health Statistics produces yearly estimates in which the “some other race” and “two or more race” populations are distributed among the pre-1997 OMB standard race groups (White, Black or African American, American Indian or Alaska Native, Asian or Pacific Islander) and two ethnicities (Hispanic and non-Hispanic).

The bridged Vintage 2004 postcensal population (MARS) file contains estimates of the resident population of the United States as of July 1, 2000, July 1, 2001, July 1, 2002, July 1, 2003, and July 1, 2004, by county, single-year of age (0, 1, 2,..., 85 years and over), bridged-race category (White, Black or African American, American Indian or Alaska Native, Asian or Pacific Islander), Hispanic origin (not Hispanic or Latino, Hispanic or Latino), and sex (1). The estimates on this file resulted from bridging the Vintage 2004 postcensal estimates with 31 race groups (the 31 race groups used in Census 2000 in accordance with the 1997 Office of Management and Budget (OMB) standards for the collection of data on race and ethnicity) to the four race categories specified under the 1977 OMB standards. Thus, the estimates in this file are based on Census 2000. The bridged-race postcensal estimates were produced by the Population Estimates Program of the U.S. Census Bureau in collaboration with the National Center for Health Statistics (NCHS). This file was released by NCHS on September 9, 2005.

Behavioral Risk Factor Survey

The Behavioral Risk Factor Surveillance System (BRFSS) is a continuous, random-digit-dial, telephone survey of adults age 18 and older, and is conducted in all states as a joint collaboration between the Centers for Disease Control and Prevention (CDC) and state Departments of Health. The survey has been conducted in Massachusetts since 1986. The BRFSS collects data on a variety of health characteristics, risk factors for chronic conditions, and preventive behaviors. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing intervention and prevention programs, developing health policy and legislation, and measuring progress toward attaining state and national health objectives. Race and ethnicity data is determined based on self-identification. The BRFSS race category for American Indians is “American Indian or Alaska Native”.

Wampanoag Community Health Survey

In 2002, the Mashpee Wampanoag Tribal Council and the Massachusetts Department of Public Health (MDPH), Division of Chronic Disease and Health Promotion, Bureau of Family and Community Health co-sponsored the *Community Health Survey, 2002*.

The sampling frame consisted of 811 adults ages 18 and older that were registered members of the Mashpee Wampanoag tribe in 2002. All adults in the database received a letter from the Tribal Council explaining the study and seeking consent for trained interviewers from the tribe to contact them and set up an appointment for an interview. One hundred people responded to the consent letter, and an additional 224 people were contacted by phone. Of those contacted, 324 were interviewed in their homes by trained interviewers from July to October 2002. No more than 2 adults in any household were interviewed. The survey was modeled on the BRFSS. Participants were offered the opportunity to participate in free screening for blood pressure, cholesterol and glucose. Forty percent of those surveyed were screened (n=131).

North American Indian Center of Boston Community Health Survey

In 2002, the North American Indian Center of Boston (NAICOB) and the Massachusetts Department of Public Health (MDPH), Division of Chronic Disease and Health Promotion, Bureau of Family and Community Health co-sponsored the North American Indian Center of Boston Community Health Survey, 2002. NAICOB is a multi-service agency serving the North American Indian community of greater Boston. The U.S. Indian Health Service is one of several federal agencies that fund the agency. Agencies funded by the U.S. Indian Health Service are required to update their community profile every two to three years. To fulfill this requirement, NAICOB conducted health surveys in 1992, 1995, 1998, and again in 2002.

NAICOB clients were contacted via mailings, at community events, by visiting local universities, attending local powwows (gatherings), newspaper ads and by using the North American community in the greater Boston area. Approximately 400 individuals were contacted with 204 completing the survey. Participants were interviewed at their homes, at the Center, and, in other locations by trained interviewers. The survey was modeled on the BRFSS. The timeline for the survey was 3 months.

Birth Data

Data on births are based on information from the Massachusetts certificate of live birth. Medical information such as birthweight and prematurity are based on information supplied by hospitals, while demographic and behavioral data such as race and ethnicity, and smoking during pregnancy are supplied by the woman who gave birth. Women chose their race from five categories: White, Black, Asian/Pacific Islander, American Indian, and Other. Ancestry is self-identified by selecting one of 38 ancestry/ethnicity groups, including Native American (American Indian is used for race, and Native American is used for ethnicity.)

Mortality Data

Data on mortality are based on information from death certificates filed with the Massachusetts Registry of Vital Records and Statistics. Physicians and medical examiners assign cause of death through a system that acknowledges the possibility of multiple causes. Demographic information on death certificates, such as age, race, Hispanic ethnicity, gender, educational attainment, marital status, and occupation is recorded by the funeral director based on information provided by an informant, usually a family member, or, in the absence of an informant, based on observation. Race and Hispanic ancestry are based on responses to two questions: one to identify race and the other to ascertain whether the decedent was of Hispanic ancestry. The mortality race category for American Indians is “Indian (American, Alaskan, Canadian, Mexican Indian, Eskimo and Aleut)”.

Substance Abuse Treatment Programs

The Bureau of Substance Abuse Services oversees the substance abuse prevention and treatment services in the Commonwealth. Its responsibilities include licensing programs and counselors, funding and monitoring prevention and treatment services, providing access to treatment for the indigent and uninsured, developing and implementing policies and programs, and, tracking substance abuse trends in the state. Their data on race and ethnicity are self-reported. It should be noted that the *use* of substance abuse treatment programs is not synonymous with the *need* for access to these programs. The race category used for this section is “American Indians”.

Early Intervention Program

Early Intervention (EI) in Massachusetts is a statewide, integrated, developmental service available to families of children between birth and three years of age. Children may be eligible for EI if they have developmental difficulties due to identified disabilities, or if typical development is at risk due to certain birth or environmental circumstances. The race category used for this section is “American Indians”.

Any Massachusetts child up to three years of age and his/her family may be eligible for EI services if the child:

- Is not reaching age-appropriate milestones in one or more areas of development.
- Is diagnosed with a physical, emotional, or cognitive condition that may result in a developmental delay.
- Is at risk for developmental delay due to various biological and/or environmental factors.

Department of Education

In the 2005-06 school year, starting with the October 1 SIMS data collection, the MA Department of Education will change the options used in collecting race and ethnicity data.

Currently, the Department collects data on students according to five race/ethnicity categories:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black
- White
- Hispanic

These categories were used to comply with previous federal reporting guidelines. Each student was identified by one and only one race/ethnicity category.

How will the data be collected starting in 2005-06?

The revised standards require that agencies offer individuals the opportunity to select one or more races when reporting information on race in federal data collections. In addition, race and Hispanic origin are to be considered ***data be*** as two separate and distinct concepts. Therefore, Hispanic origin data are collected separately from race. The minimum designations, according to OMB, are:

Ethnicity:

- Hispanic or Latino. A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term, "Spanish origin," can be used in addition to Hispanic or Latino."
- Not Hispanic or Latino

Race:

- American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- Black or African American. A person having origins in any of the black racial groups of Africa.
- Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

The above categories are the minimum set by OMB, and these are the categories the Department will use to report the Massachusetts data. Any additional categories would have to be mapped onto the five minimum categories for federal reporting. In addition, adding just one more race category would bring the number of possible combinations to over 120. Districts may decide to collect additional race or ethnicity categories, but will need to map to the minimum for reporting to the Department through SIMS.

Each school district should decide how it will update its current student data, as needed to conform to the new federal reporting categories. (For newly enrolling students, districts will

collect the data according to the new system.) Each school district should decide how to communicate to parents about the new reporting categories, informing them how they may update the race or ethnicity data that the district has on file for their children if they wish to do so.

The following questions are sent to parents:

Please answer BOTH questions 1 and 2.

1. Is this student Hispanic or Latino? (*choose only one*)

- ☐ No, not Hispanic or Latino
- ☐ Yes, Hispanic or Latino (A person of Cuban, Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.)

2. What is the student's race? (*choose one or more*)

- ☐ American Indian or Alaska Native (A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.)
- ☐ Asian (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam)
- ☐ Black or African American (A person having origins in any of the black racial groups of Africa.)
- ☐ Native Hawaiian or Other Pacific Islander (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)
- ☐ White (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa)

Enrollment Data

The Massachusetts Department of Education collects data on all students (regular education and special education students) enrolled in public schools. Starting in October 2001 enrollment data is collected at the student level via the web. Race and ethnicity information is collected from parents or guardians via the enrollment form.

Dropout Data

The Massachusetts Department of Education collects data on students who dropped out of school during the reporting year. Race and ethnicity information is collected from the parents via the enrollment form. A dropout is defined as a student in grade nine through twelve who leaves school prior to graduation for reasons other than transfer to another school and does not re-enroll before the following October 1.

Retention Data

The Massachusetts Department of Education collects data on grade retention rates in Massachusetts public schools. The Massachusetts Department of Education defines "retention" as having repeated the grade in which the student was enrolled during the previous school year. Race and ethnicity information is collected from parents or guardians via the enrollment form.

Competency Determination

The Massachusetts Department of Education collects data on the progress of students in meeting the Competency Determination through the standard MCAS test, MCAS Alternate Assessment, and the MCAS Appeals Process. Race and ethnicity information is collected from parents or guardians via the enrollment form.

Plans of High School Graduates

The Massachusetts Department of Education collects data annually from public high schools regarding the plans of their graduates. Race and ethnicity information is collected from parents or guardians via the enrollment form.

Youth Risk Behavior Survey (YRBS)

The Massachusetts Department of Education conducts the Youth Risk Behavior Survey (YRBS), which randomly selects public high schools in Massachusetts to survey each year on issues relating to leading causes of morbidity and mortality among youth and adults in the United States. In each participating school, 3 to 5 classes are selected to participate. All students in grades 9 through 12, including Special Education (SPED) students and students with limited English proficiency are given an equal probability of being selected. A trained survey administrator from the Department of Education traveled to each participating school and administered the survey in selected classrooms using a standardized administration protocol. Survey administrators read instructions aloud to participating students, emphasizing that the survey was both anonymous and voluntary. Completion of the survey in some Special Education classes was facilitated by reading the questions and responses aloud. Race and ethnicity is self-reported.

